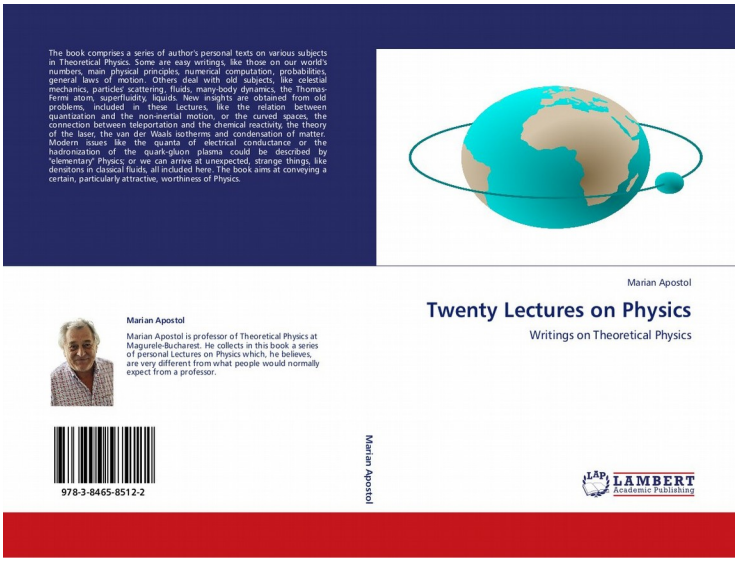
Special Books

1 Twenty Lectures on Physics (Writings on Theoretical Physics), Lambert, 2012 (235 pp) (978-3-8465-8512-2)



The book comprises a series of M. Apostol's personal texts on various subjects in Theoretical Physics (Condensed Matter, Solid State Physics, Nuclear Physics, Classical Physics.). The book aims at conveying a certain, particularly attractive, worthiness of Physics. These Lectures on Physics, the author believes, are very different from what people would normally expect from a professor.

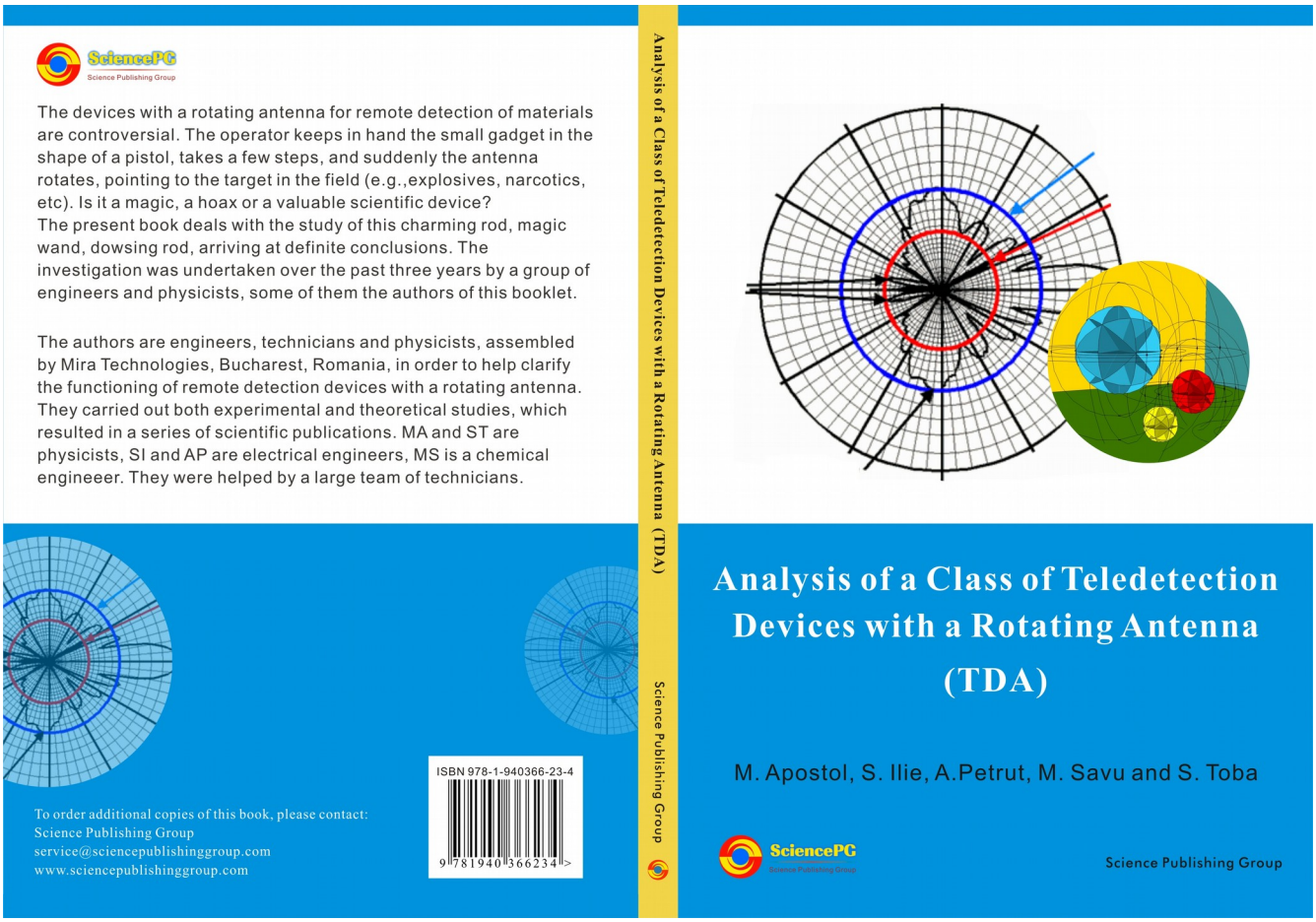
2 Studies in Theoretical Physics (Selected Works 1972-2012). Elsevier, 2012 (cca 800pp) (20360-21036)

More than 100 original papers by M. Apostol, published between 1972-2012 in scientific journals.

3 Essays in Electromagnetism and Matter (Dipoles ang Polarization), Lambert, 2013 (261 pp) (978-3-659-41179-3)

The book is devoted to various problems arising in electromagnetic field interacting with matter. It belongs to what is usually called Electrodynamics of Continuous Media, or Classical Electromagnetism in Matter, or Optics and the Theory of Electrons. These subjects are usually left at a quasi-empirical or semi-phenomenological level. The present book introduces explicitly the degrees of motion of the electric polarization and magnetization of matter. This new approach renders Maxwell equations in matter a determined system of equations and allows specific solutions for a series of problems which might be of interest in today's nanoplasmonics and nanophotonics. The book includes both a basic exposition of fundamental things in Electromagnetism and various particular problems, some of them collected from papers published in scientific journals.

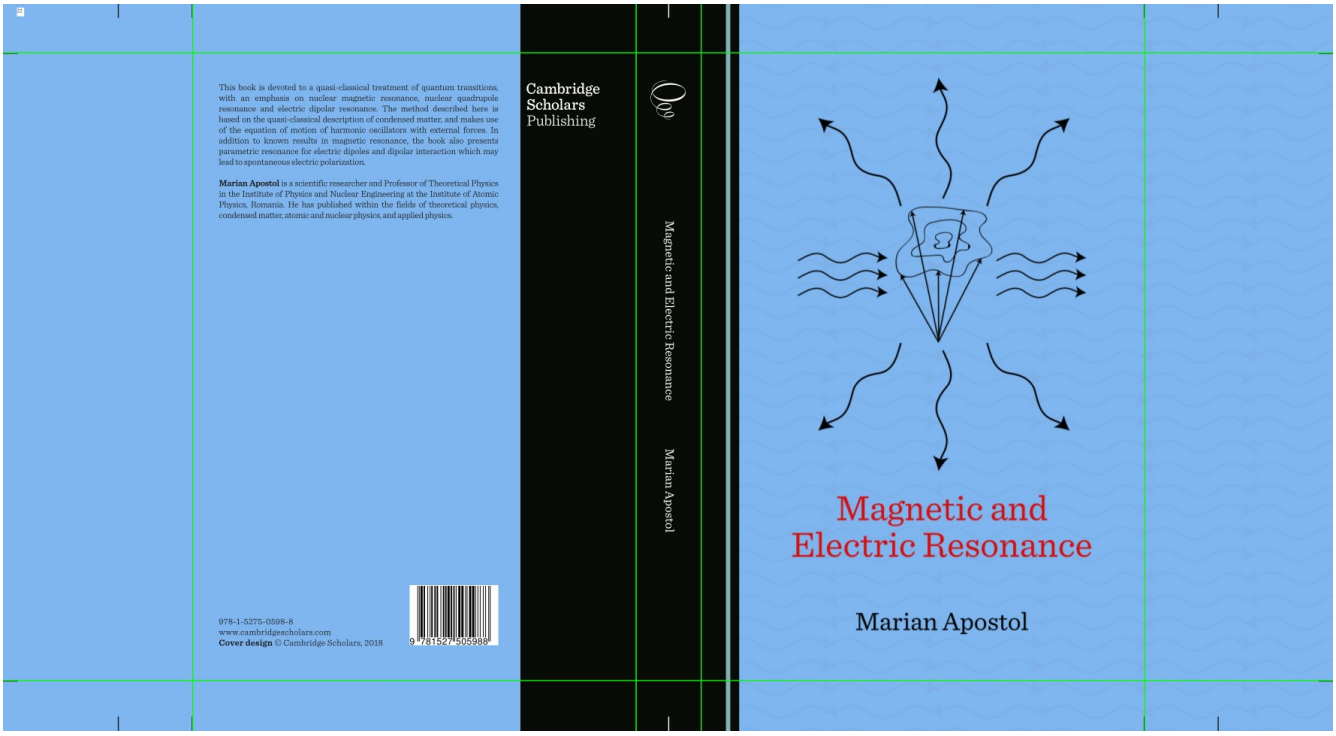
4 Analysis of a Class of Teledection Devices with a Rotating Antenna, M Apostol, S Ilie, A Petrut, M Savu and S Toba, Science Publ Group, NY, 2014 (134 pp) (978-1-940366-26-5)



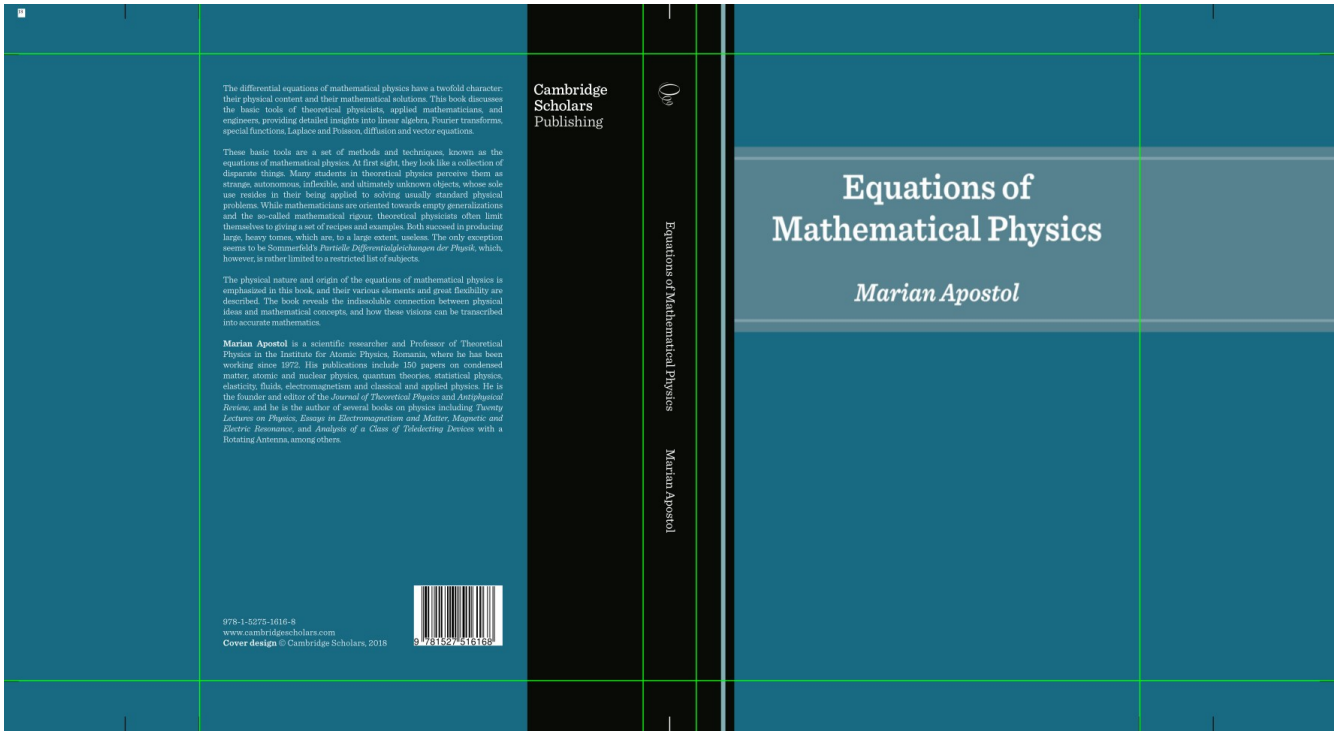
5 The Theory of Earthquakes, Cam. Int. Sci. Publ., Cambridge (2017) (352 pp) (978-1-910889-51-0 (ebook: 978-1-910889-52-7)), by B. F. Apostol

6 Introduction to the Theory of Earthquakes, Cam. Int. Sci. Publ., Cambridge (2017) (86 pp) (978-1-910889-53-4 (ebook: 978-1-910889-54-1)), by B. F. Apostol

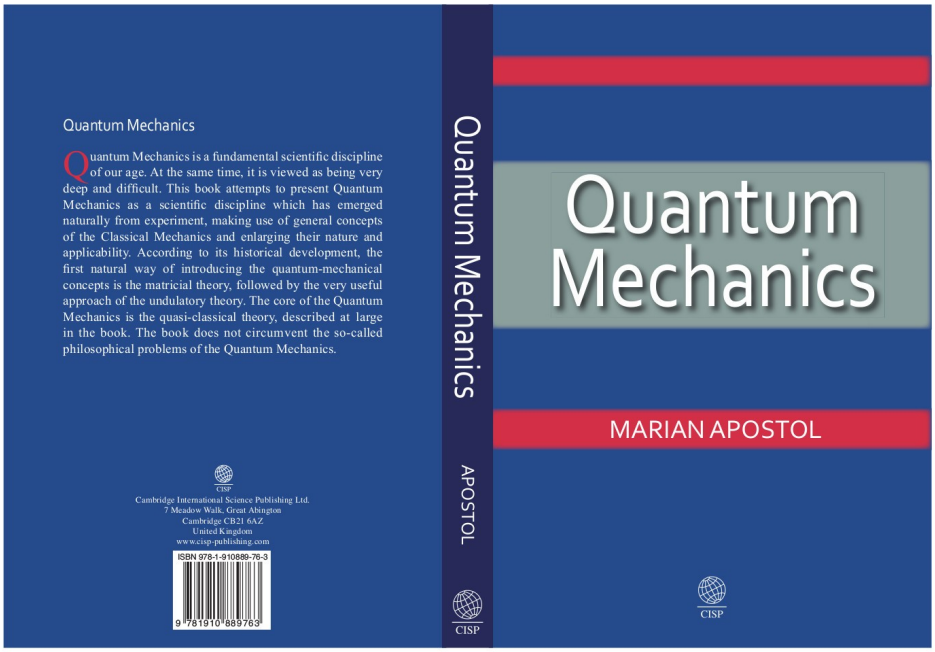
7 Magnetic and Electric Resonance, Cambridge Scholars (2018) (340 pp) (978-1-5275-0598-8)



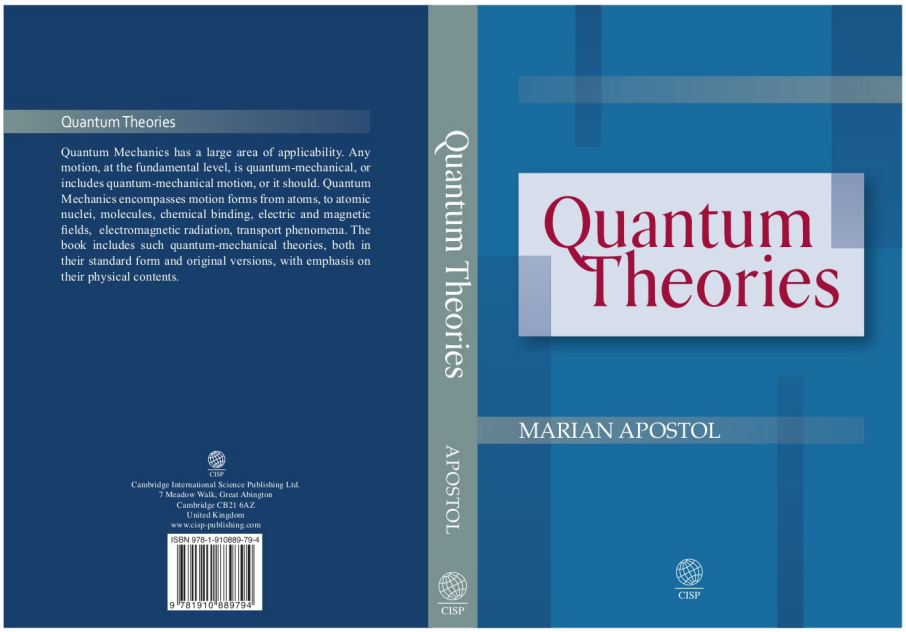
8 Equations of Mathematical Physics, Cambridge Scholars (2018) (240 pp) (1-5275-16116-4, 978-1-5275-16116-8)



9 Quantum Mechanics, Cam. Int. Sci. Publ., Cambridge (2018) (244pp) (978-1-910889-76-3), M. Apostol



10 Quantum Theories, Cam. Int. Sci. Publ., Cambridge (2018) (243pp) (978-1-910889-79-4), M. Apostol



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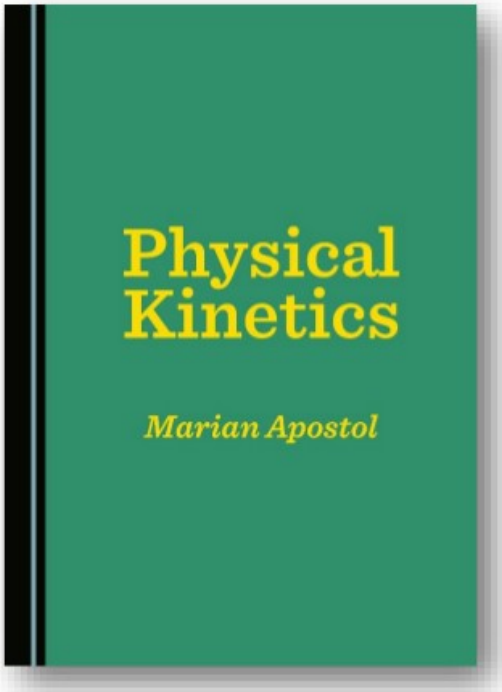

Marian Apostol is a Scientific Researcher and Professor of Theoretical Physics in the Institute for Physics and Nuclear Engineering and the Institute of Atomic Physics, Magurele, Romania, where he has worked since 1972. He has published around 150 papers on condensed matter, atomic and nuclear physics, quantum theories, statistical physics, elasticity, fluids, electromagnetism, and classical and applied physics. He is the founder and editor of the Journal of Theoretical Physics and Antiphysical Review, and the author of several books on physics, including Twenty Lectures on Physics; Essays in Electromagnetism and Matter; Magnetic and Electric Resonance; Equations of Mathematical Physics; Theory of Quanta; Structure of Matter; and Analysis of a Class of Teledecting Devices with a Rotating Antenna.

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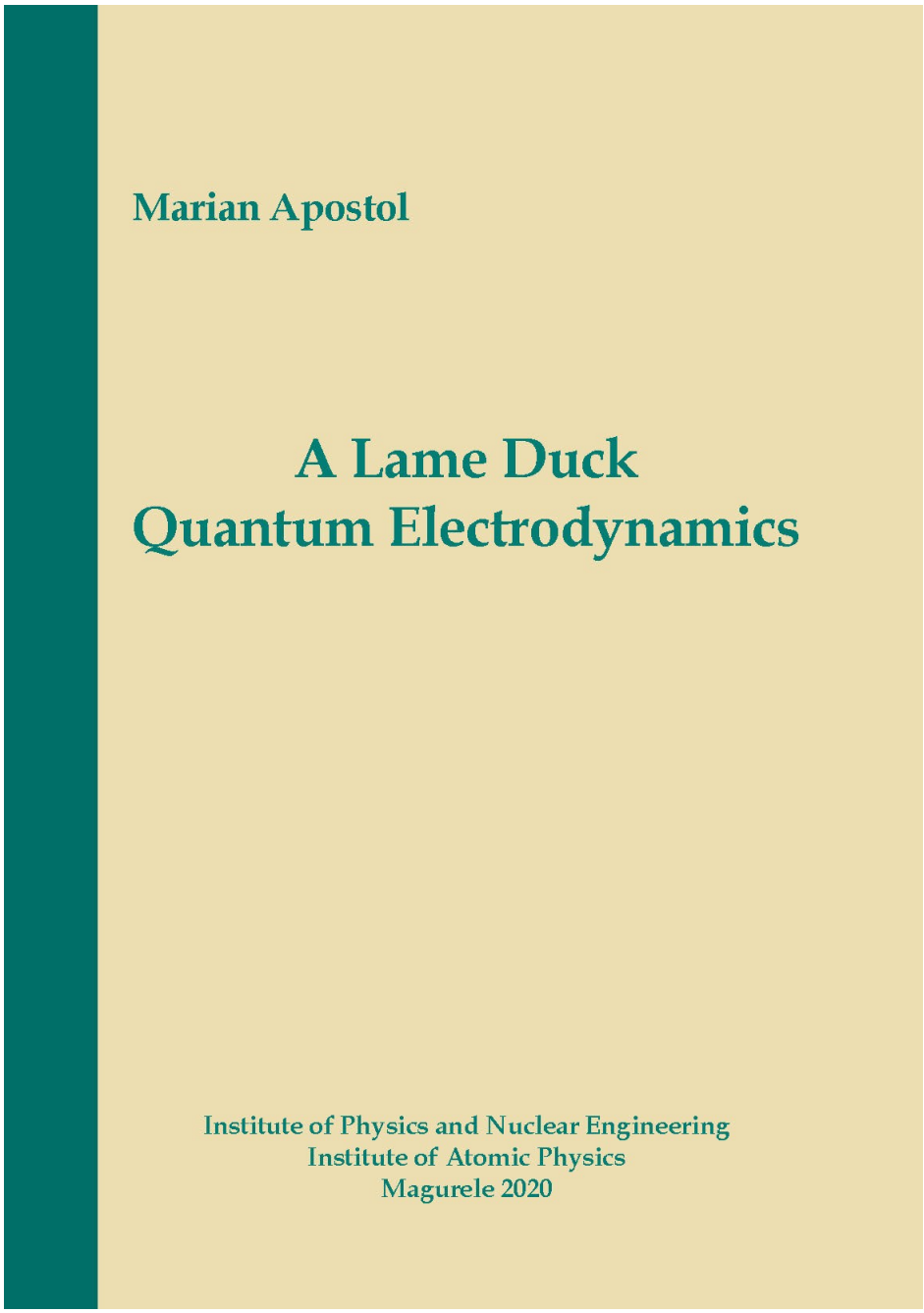

14. Seismology, Nova Sci. Publs., NY (2020) (335 pp) (978-1-53618-492-1), by B. F. Apostol

This book offers a comprehensive physical theory of the earthquakes. The presentation level is rather mathematical, but thorough physical explanations are provided everywhere. It is an original monograph of Seismology, intended for the use of students, researchers and the public who wish to become familiar with the physics and mathematics of earthquakes. It provides the understanding of the earthquakes and specific knowledge we may have of them. The author is a scientific researcher in the Institute for Earth's Physics at Magurele, with scientific publications on the theory of elasticity, focal mechanism of earthquakes, seismic waves and statistical analysis of seismic events.

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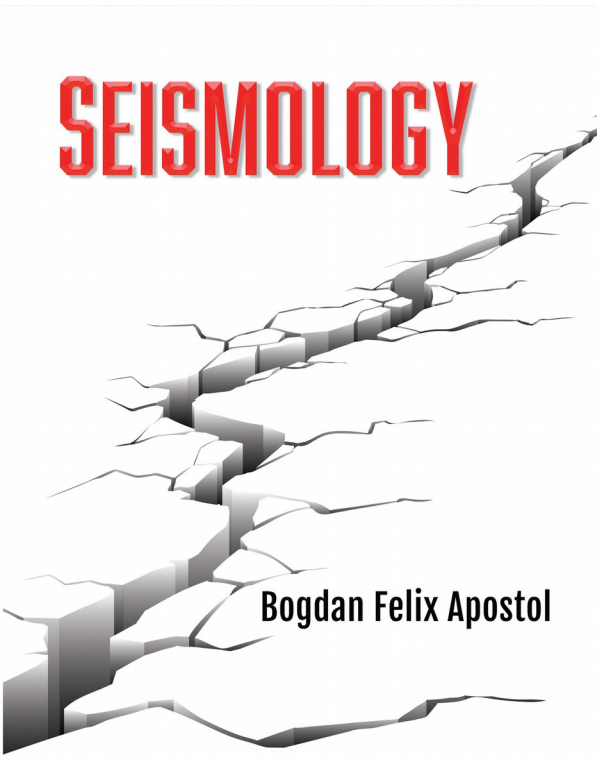

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15. Prelegeri de Fizica, M. Apostol

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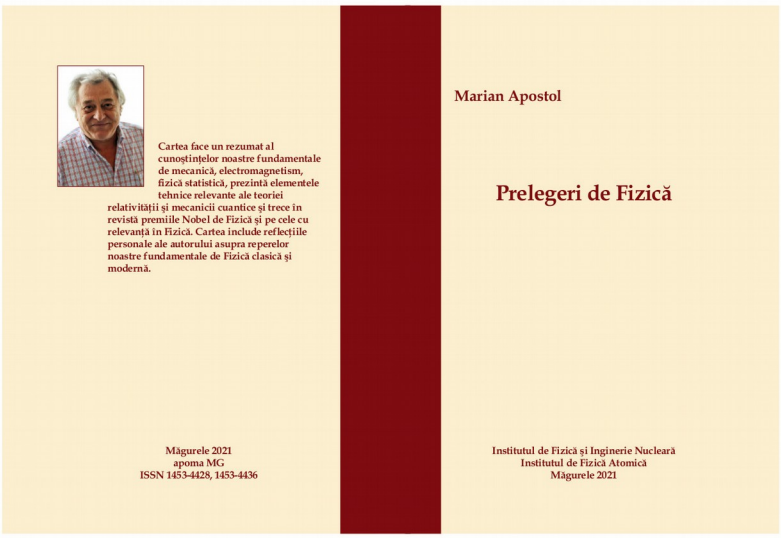

16. Lectii de Fizica Elementara, M. Apostol

Mecanica, Termodinamica, Statistica, Elctromagnetism, Fizica Atomica

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17. Matematici Elementare, M. Apostol

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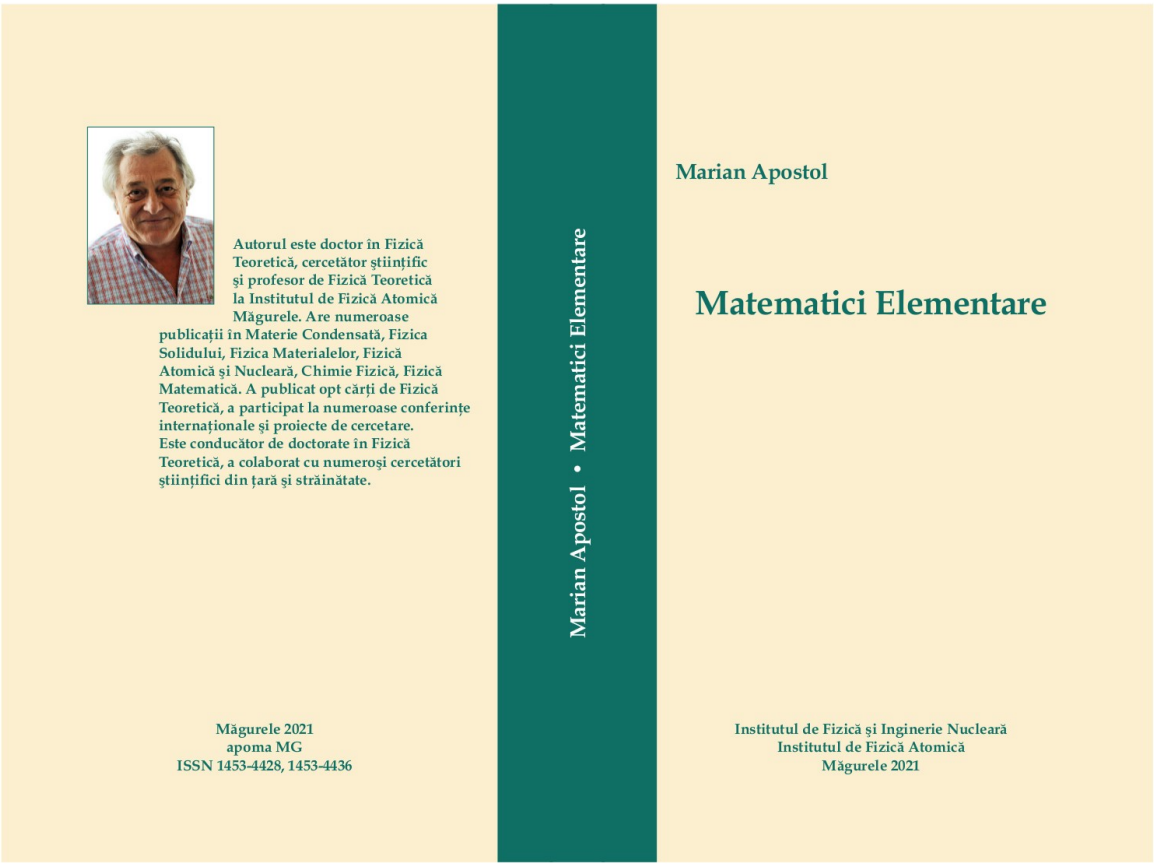

18. Statistical Physics, M. Apostol
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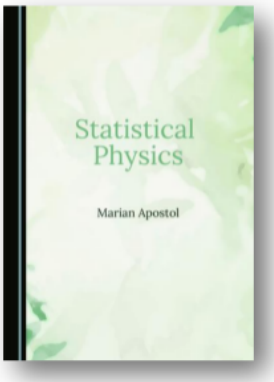

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Book Description

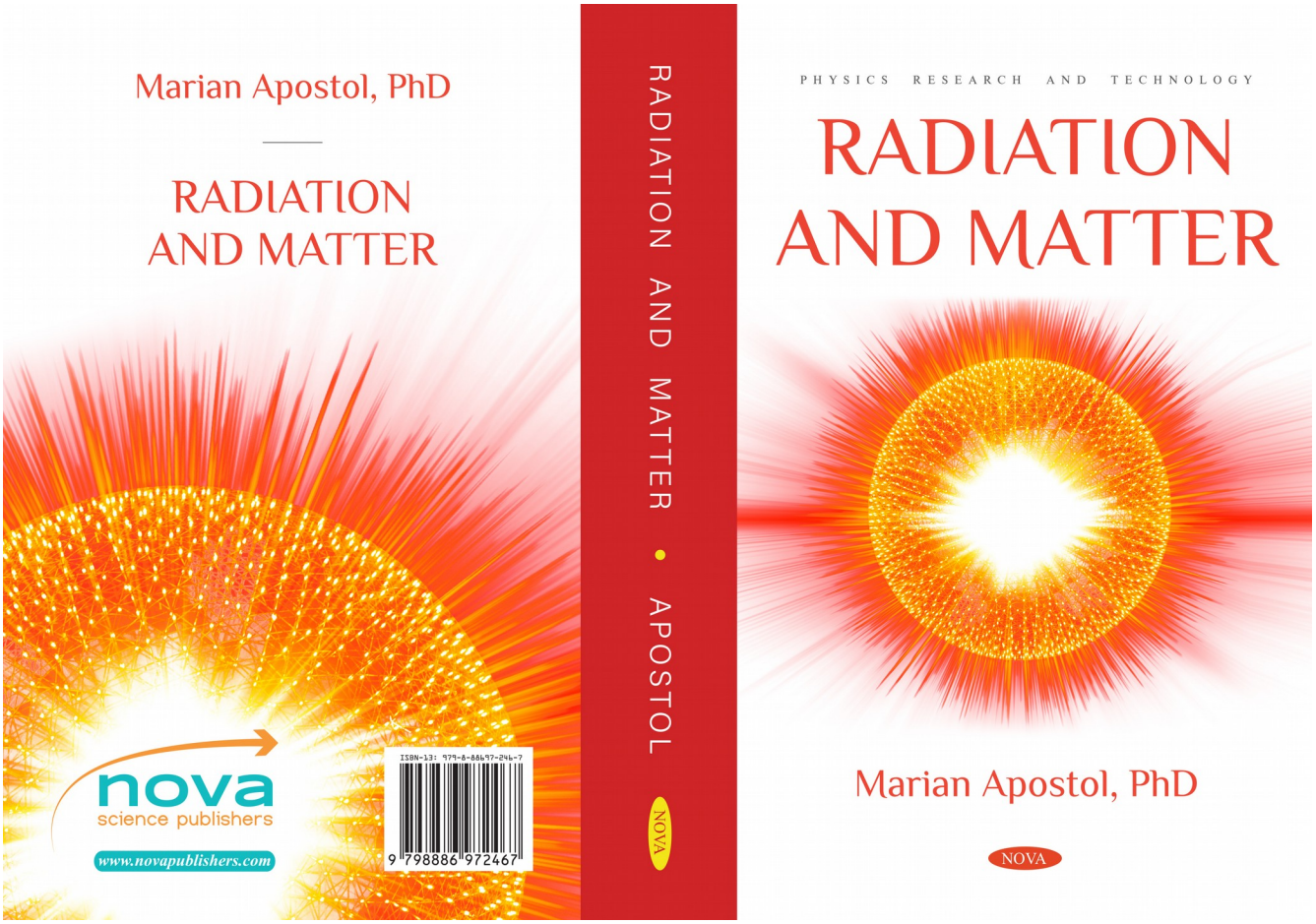
This book explores statistical physics, with an emphasis on the distinct character of the statistical motion and difficult subjects, related, mainly, to condensed matter. It discusses the interaction problem in real gases, as well as dimensionality effects and melting. The book shows how to estimate easily the critical temperature of the Ising ferromagnets, the origin of the drag force, how to get an inverse-wind vortex in turbulence, the entropy of the earthquakes, and how the gas-liquid transition occurs. It also describes the hadronization of the quark-gluon plasma, the phase diagram of the quantum chromodynamics, and the thermodynamics of black holes.

About the Author

Marian Apostol is a scientific researcher and Professor of Theoretical Physics in the Institute for Physics and Nuclear Engineering and the Institute for Atomic Physics, Romania, where he has worked since 1972. He is the author of 150 papers on condensed matter, atomic and nuclear physics, quantum theories, statistical physics, elasticity, fluids, electromagnetism, and general and applied physics. He is the founder and editor of the *Journal of Theoretical Physics* and the *Antiphysical Review* and the author of several books on physics, including *Twenty Lectures on Physics*, *Essays in Electromagnetism and Matter*, *Magnetic and Electric Resonance*, *Equations of Mathematical Physics*, *Quantum Mechanics*, *Quantum Theories*, *and Physical Kinetics*.

Statistical Physics is available now in Hardback from the Cambridge Scholars website, where you can also access a free 30-page sample.

19. Radiation and Matter, Nova Sci. Publs., NY (2022) (317 pp) (978-1-68507-930-7), by M. Apostol



20. A Guide to Practical Seismology, Cambridge Scholars, 2023, 978-1-5275-9036-6 (296 pp), by B. F. Apostol and L. C. Cune

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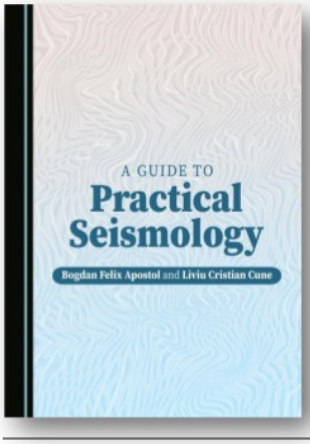

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Book Description

This book presents 10 specific actions to be undertaken in order to provide results of practical relevance in seismology. From the statistical analysis of earthquakes, we can estimate the earthquake mean recurrence time and the probability of occurrence of the next earthquake. In addition, through statistical analysis, we can identify correlated foreshocks and estimate the occurrence time of the main shock. As the book shows, the general state of seismicity of a given seismic region can be assessed by statistical means, in particular the earthquake entropy. From measurements of the seismic waves on the Earth's surface, we can deduce the tensor of the seismic moment, the earthquake's energy and magnitude, as well as the orientation of the fault, the fault slip, the focal volume and the duration of the seismic activity.

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'Little is known about Earth's interior. The drilling down into the earth reaches at most 10 – 15km. It is accepted that the Earth consists of several shells. First, at the surface, there is a solid crust, extending down to approximately 70km, on average; locally it may have 5km thickness. Down to approximately 3000km an extremely viscous mantle exists. The next 2000km down to the centre are occupied by a liquid outer core. Finally, a solid inner core exists at the centre.'

- p. 1

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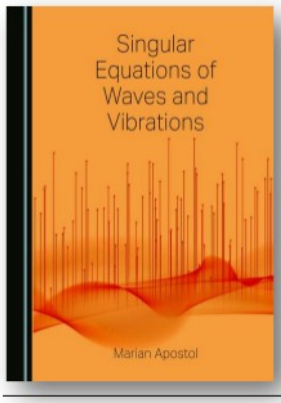
Singular Equations of Waves and Vibrations

By Marian Apostol



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Book Description

This book presents an exploration of the wave and vibration equation in one, two and three dimensions, with emphasis on singular solutions. The distinction between the wave treatment and the vibration treatment is particularly discussed with the causality principle being the leading principle for waves in this context. The necessity of regularization of the singular solutions is presented whilst the scattered waves are differentiated from the reflected (and refracted) waves, according to Huygens principle. The physical content of the wave equation is underlined. Relevant applications are included and some more exotic phenomena are discussed, such as pulses, tsunami and storm breakers, the ringing of bells and the collapsing of towers, and classical waves and vibrations in an elastic half-space or a sphere. This book is oriented to students, instructors, teachers, researchers in physics and applied mathematics, as well as engineers and other practitioners of mathematical physics.

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About the Author

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